

# CASE STUDY

## EFFLUENT REUSE

### De Bortoli

### Bilbul, MIA, NSW

There have been significant changes at De Bortoli Wines' major production site in Griffith in recent years, beginning with an environmental assessment in 2004 that resulted in projects to:

- minimise sodium; and
- control odour.

This evolved into a process of maximising gains from the reuse of waste streams and minimising waste management costs.

In 2005, the company bought a 65 ha farm to reuse winery wastewater. The operating rules for the farm are balancing nutrients and salt in with nutrients and salt out, and water in with water out. It produces forage and grain (for stock feed and human consumption) on flood irrigation from water stored in 100 ML of dams on the winery site. In summer, a single aerated dam is used. In winter, all four dams are used and managed to minimise odour.

A summer crop is grown every year, with either a winter crop or fallow over the remainder of the property.

Thirty crops have been trialled over the past five years for seed, hay and silage production. The most significant crop is forage sorghum ensiled in bales, as it utilises high levels of potassium and produces a high biomass under the reuse water. Other crops used in rotation

include seed oats (for lamb fattening) for disease break, soil resting and some nitrogen fixation.

The wastewater treatment system produces about 120 ML of wastewater a year, plus up to 150 ML in stormwater.

The wastewater treatment train consists of pH adjustment with lime (winter) or ammonia (summer), solids removal by serpentine settling pits and an aerobic/facultative dam followed by storage in the other farm dams. Since establishing the property, the original 400 kW aeration system has been replaced by an 8 kW low-volume system, saving \$160,000 per year in energy costs alone.

Recovered solids are dewatered by evaporation/digestion on concrete evaporation bays once the mud in the off-line serpentine is spadeable. Once digestion is complete, it is spread onto the farm between crops, which helps maintain soil calcium during the growing season.

Potassium is the most limiting factor in the reused water, affecting soil structure, crop rotation and crop selection. About 35 tonnes/year of potassium is exported off site in crops.

#### Acknowledgements

Rob Glastonbury, De Bortoli Wines.



Australian Government  
Grape and Wine Research and  
Development Corporation

